American Journal of Public Health
and THE NATION'S HEALTH

Volume 25 March, 1935 Number 3

Relation of the Retail Price of Milk to Production Costs*

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THE watersheds of our rivers have played an important part in the development of this country; but it is the milkshed of the vast stream discharging some 3 million quarts a day into the milk bottles of Greater New York which has caused a new landmark to be set up in the political economy of the state, and which has become one of the proving grounds for the joint problems of agricultural relief and industrial control. Milk has become a public utility in the sense that 7 states—and where the states have not acted, the federal government—have assumed responsibility of guaranteeing to the producers of milk a fair return, and of protecting the consumer against unfair cost. Health officials are not primarily interested in the price of milk; yet when cutthroat competition demoralizes the industry, or when low prices to producers threaten bankruptcy, or when exorbitant prices curtail the buying power of the masses, or when a milk strike shuts off a city's supply, the health officer has a very immediate concern. In other words, in so far as the economic aspects of the milk industry have an impact upon a continuous supply of standard quality, the public health considerations loom large.

For these reasons the Legislature of New York State made the Health Commissioner an *ex-officio* member of a milk control board established in 1933. This board was given absolute authority to regulate and control every phase of the dairy industry in New York except sanitary control. The constitutionality of the law was upheld by the United States Supreme Court.

On the whole, our experience with state regulation has shown that it is of value to the producer. Dealers have operated with a narrower spread between the buying and the selling price. The farmer receives a larger percentage of the consumer's milk dollar than under previous unregulated competitive conditions. During the past 12 months New York State farmers received 23 million dollars more for their milk than in 1931 although the selling price in New York City averaged slightly over 2 cents per quart less than in 1931.

* Read before the Public Health Engineering Section of the American Public Health Association at the Sixty-third Annual Meeting in Pasadena, Calif., September 3, 1934.

TABLE I

ESTIMATED COST OF PRODUCING MILK IN 1932
(Based on Warren-Misner Formula)

Item	
Grain, 30 lb. @ $23.99 per ton [1]	$0.36
Silage, 100 lb. @ $6.00 per ton [2]	.30
Hay, 60 lb. @ $7.08 per ton [3]	.21
Labor, 2.5 hours @ $.20 per hour	.50
Total feed and labor (80%)	$1.37
Other costs (20%) [4]	.34
Total yearly cost (100%)	$1.71
Average net price to farmers [5]	1.26
Loss	$0.45
Net return per hour of labor [6]	$0.02

1. Grain is charged at $4.00 per ton above the wholesale price for a dairy ration at Utica, N. Y., as reported in *Farm Economics*, New York State College of Agriculture.

2. Silage is charged at the approximate cost of growing and harvesting as shown by cost accounts on New York farms.

3. Hay is charged at the prevailing price on the farm, as reported in *Farm Economics*.

4. Miscellaneous costs, other than feed and labor, have been found to constitute about 20 per cent of the total cost of producing milk. In these computations, these miscellaneous costs are estimated at 25 per cent of the feed and labor costs, with labor charged at $.20 per hour.

5. Average of the Dairymen's League net pool price and the Sheffield price, 201–210 mile freight zone, for milk testing 3.6 per cent fat.

6. The average net price for milk less all charges except for labor, divided by 2.5, the approximate hours of labor per 100 lb. of milk.

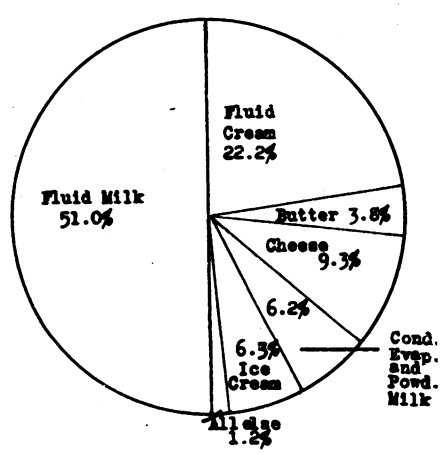
Public dissatisfaction with the price of milk in relation to what the farmer gets is a perennial topic in most cities. Few consumers understand, for example, why the farmer in New York State in July, 1934, received an average price of $1.61 per cwt. (3.5 cents per quart) while the consumer in New York City pays 13 cents for Grade B milk and 16 cents for Grade A milk delivered at the doorstep. I shall not undertake to prove that this "spread" is justified. I shall attempt, however, to give you a statistical picture of the elements in this spread.

Let us first consider production costs. Professor Warren of Cornell University, from investigations covering 9 dairy states, has devised a formula for determining these costs. Tests in other milksheds show the formula to be accurate within 4 per cent. It is based on the fact that it requires 190 lb. of various types of feed and 2½ hours' labor to produce 100 lb. of milk. These two elements constitute 80 per cent of milk production costs. In Table I this formula is applied to feed costs in New York for the year 1932 at a 20 cents per hour labor rate. For the first 6 months of 1934 the monthly average of milk prices per cwt. was $1.61 as compared to a production cost of $2.16.

One apparent reason for the difference between the price received by the farmer and the retail price is that in New York State only about one-half of all milk produced is sold as fluid milk. Figure I shows the utilization of milk for 1931. The milk which cannot be sold as fluid milk brings a somewhat lower price as fluid cream and succes-

FIGURE I

UTILIZATION OF MILK RECEIVED AT DAIRY PLANTS IN NEW YORK STATE, 1931



Only about half the total supply for the year is used as fluid milk and less than three-fourths as fluid milk and cream. The remainder is converted into manufactured products. There are wide seasonal differences in utilization.

sively lower prices for ice cream, evaporated milk, cheese and butter. In other words, the surplus which must be sold at cheaper rates lowers the average price.

One is inclined to say, "Eliminate the surplus by reduced production or increased consumption." Unfortunately, because of the nature of the milk business a surplus of at least 25 per cent over average fluid requirements is necessary to meet unpredictable variations between supply and demand. While the farmer in New York was receiving $1.61 per cwt. during the first half of 1934 the price he received for milk consumed as fluid milk was $2.40, while that paid for milk which went into butter and cheese averaged less than $1.00.

These prices which I quote are at the country milk plant, 200 miles from New York City. More or less actually is paid depending upon whether the milk is closer to or further from New York City.

The elements which enter into the dealer's spread are summarized for 19 New York City dealers for August, 1933, for fluid milk and fluid cream (see Table II). At that time the retail price of home-delivered milk was 12 cents and 15 cents, yet attention is called to the fact that the average sale by the dealer, wholesale and retail, amounted to only $.086. Prices of milk at stores were 1 and 2 cents less than the home-delivered price. The actual utilization of milk by classes is shown in a later table.

Attention is called also to the great variation in the efficiency of operation of these 19 dealers. Only 5 of them made a profit for that month. One or two of the largest made relatively large profits, while a considerable percentage were losing money. This factor introduces a most baffling problem in attempting to fix milk prices to producers and to consumers. Obviously the state cannot guarantee a profit to the least efficient element in the industry. Should prices be set which will drive out of business one-quarter, one-half, or nearly all of the milk dealers? To do this would tend to create a monopoly, and with the present uncertainty as to the nature and extent of permanent state

TABLE II

SUMMARY OF SALES, COSTS AND PROFITS, 19 NEW YORK CITY DEALERS, AUGUST, 1933

Item	*Amount per Quart*			*Per Cent of Sales*
	Average	*High*	*Low*	
Sales	$.08651	$.10254	$.05222	100.00
Product Cost	.04440	.06230	.03126	51.33
Gross Spread	.04211	.04894	.00894	48.67
Operating Costs				
Country Plants	.00469	.00931	.00000	5.42
Transportation	.00620	.00798	.00000	6.96
City Pasteurizing Plants	.00428	.00600	.00000	4.95
Containers	.00178	.00318	.00054	2.06
Delivery and Selling	.02344	.03464	.00259	27.09
General and Administrative	.00186	.00403	.00081	2.15
Total Operating Costs	$.04207	$.05827	$.01448	48.63
Net Operating Profit	.00004	.00371	−.01218	0.04
Net Other Expense	−.00004	.00048	−.00427	−0.05
Net Profit before Taxes	.00008	.00330	−.01266	0.09
Federal Income Tax	.00001	.00040	.....	0.01
Net Profit after Taxes	.00007	.00290	−.01266	0.08

TABLE III

DISTRIBUTORS' MARGINS ON RETAIL MILK, STANDARD GRADE *

Year	Hartford	Boston	New York	Philadelphia	Baltimore	Washington	Milwaukee	Pittsburgh	Minneapolis
	(Cents per quart)								
1921.....	6.4	6.9	...	5.2	5.8	...	...	7.2	5.3
1922.....	6.4	6.2	6.8	5.2	5.5	...	...	5.8	4.9
1923.....	6.5	6.0	6.7	5.3	5.3	...	...	6.0	5.1
1924.....	6.5	6.0	6.6	5.0	5.3	6.5	4.8	6.1	5.5
1925.....	6.5	6.0	6.7	5.0	5.1	6.4	4.6	6.0	5.4
1926.....	6.6	6.0	6.8	5.1	5.4	6.5	4.7	6.1	5.4
1927.....	6.5	6.2	6.9	5.3	5.7	6.7	4.6	6.3	5.2
1928.....	6.5	6.5	6.9	5.3	5.7	6.6	4.5	6.2	5.8
1929.....	6.6	6.5	7.0	5.4	5.7	6.2	4.7	6.3	5.9
1930.....	6.5	6.6	6.9	5.3	5.8	6.2	4.9	6.2	5.7
1931.....	6.5	6.6	6.9	5.1	5.4	6.1	4.5	5.9	5.7
Av. 1921–31...	6.5	6.3	...	5.2	5.5	...	...	6.2	5.4
Av. 1926–30...	6.5	6.4	6.9	5.3	5.7	6.4	4.7	6.2	5.6

* These margins were computed as follows: The quoted Class I or Basic Prices were adjusted to a uniform basis. The quoted prices for each market were adjusted so as to apply to milk of the average fat content sold in each city. The margins given are the result of subtracting the adjusted Class I or Basic Prices from the quoted retail prices for each market as reported by the U. S. Department of Agriculture. From these margins must come the cost of city processing and distribution, and the distributors' profits.

and federal control this seems contrary to the public interest. In other words, unless rigorous control is to be exercised permanently, or unless cities themselves are to operate milk distribution systems or give limited franchises to one or two companies, it does not seem reasonable to destroy a large number of distributors even though admittedly there are too many for efficient operation. There is an even more practical consideration. When faced with losses milk dealers, in spite of rigorous laws, will seek to evade the required payments to farmers; or, if a dealer does go into bankruptcy, a large group of farmers stand to lose several months' milk payments and often are left with no market outlet.

The problem of the dealer's spread becomes somewhat simplified when we consider the actual operating costs for a typical month, as shown in Table II. How justifiable each of these costs may be furnishes ground for debate. Let us consider two items. There are too many distributors for efficient operation; there are also too many country plants. Country plant costs approximate ½ cent per quart. One-half the number would operate as efficiently, but in a highly competitive business how can the state compel combinations of plants short of actual ownership?

Delivery and selling costs amount to nearly 2½ cents per quart. If home deliveries alone were considered this cost would be nearly doubled. It is obvious that unified selling and delivery in place of the present multiplicity of plants, trucks and wagons would reduce these costs materially if equal efficiency of operation could be assumed. It would be of interest if some city in the country were to experiment with municipal operation of the milk distribution system. Bearing in mind natural variations in costs between different cities because of obvious factors, some yardstick as to relative performance would be had. In connection with variations in costs between different cities, data collected by a legislative commission in New York will be of interest and are shown in Table III. These margins were adjusted to make

the comparison as accurate as possible.* Natural variations in spread depend upon many local factors which cannot be discussed in the limits of this paper.

TABLE IV

ANALYSIS OF GROSS SPREAD
19 NEW YORK CITY DEALERS, AUGUST, 1933

Item Sold	*Per Cent of Total Milk Equivalent*	*Average Selling Price*	*Average Cost*	*Average Gross Spread.*	*Per Cent of Total Spread*
Grade B Milk		Per Quart of Milk Equivalent			
Retail, Bottled	19.9	$.1210	$.0521	$.0689	32.6
Wholesale, Bottled	19.1	.0981	.0527	.0454	20.7
Wholesale, Bulk	4.9	.0823	.0485	.0338	3.9
Other Dealers	5.7	.0681	.0527	.0154	2.1
Total	49.6	.1023	.0520	.0502	59.3
Grade A Milk *					
Retail, Bottled	10.0	.1542	.0677	.0865	20.6
Wholesale, Bottled and Bulk	1.7	.1327	.0673	.0654	2.6
Other Dealers	0.4	.0850	.0677	.0173	0.2
Total	12.1	.1489	.0676	.0812	23.4
Cream					
Retail, Bottled	4.8	.0707	.0318	.0389	4.5
Wholesale, Bottled	9.4	.0522	.0324	.0198	4.4
Wholesale, Bulk	5.3	.0436	.0337	.0099	1.2
Other Dealers	2.2	.0410	.0340	.0070	0.4
Total	21.7	.0531	.0328	.0203	10.5
Other Products	16.6	.0374	.0200	.0174	6.8
All Products	100.0	$.0865	$.0444	$.0421	100.0

* Includes small amount of certified and other special milk.

In Table IV the gross spread of 19 New York State dealers for August, 1933, is analyzed. From this it is seen that, from the total volume of milk equivalent, 50 per cent was sold as Grade B fluid milk, 12 per cent as Grade A, 22 per cent as cream, and 16 per cent in various by-products.

In recent years a new factor has entered into the costs of most kinds of business. This is the lack of capacity operation. Milk consumption in New York City has dropped about 15 per cent although at present the decline has halted and seems to be started on an upward trend again. This reduced consumption, coupled with a slightly increased production of milk, is the primary factor which brought about the collapse in milk prices and the resultant state control.

Because present consumption of milk throughout the state is considerably less than is needed for normal human nutrition, to meet this problem New York has pioneered in state action to increase consumption through advertising. The cost is borne jointly by producer and dealer. If this venture is attended with the same success as experienced in advertising other food commodities, both public and industrial health will be promoted thereby.

* For full discussion see Report of the Joint Legislative Committee to Investigate Milk Industry, page 187.

The milk industry, like others, has been criticised for over-capitalization, for seeking to pay dividends on "watered stock," and similar practices common to American business generally.

The data I have given above do not relate to return on capital but solely to operating costs. In 1931, 28 of the larger distributors in New York City valued good will at 7.4 per cent of total assets. The valuations of lands, buildings, and equipment probably represented the previous higher level of prices. Studies made by the New York Milk Control Board in August, 1933, sought to eliminate from reported costs and capital investment every unnecessary or "padded" item. These adjustments in cost and net worth included holding company charges, excessive salaries of officers, idle property, good will, and increase in value of fixed assets. This reduction both in reported costs and investment increases the apparent rate of return on the dealer's net worth from 1/8 per cent to 3⅓ per cent per year. However, this maximum apparent saving in costs would amount only to 1/10 cent per quart of milk. In other words, excessive salaries and over-capitalization in themselves do not contribute materially to the price of a quart of milk. If substantial reductions in the costs of milk to the public are to be made, they must be accomplished through more efficient operations or the elimination of costly services.

This is a brief sketch of milk costs and control measures up to date. What of the future? What are the objectives? In my opinion state control must provide the consuming public with an adequate and continuous supply of safe and wholesome milk at a price which represents a just return and no more to producers and distributors for their labor and investment. Costs cannot be guaranteed either to the inefficient producer or distributor. Milk has become a public utility in effect if not in name in New York and in many other milksheds of the country. In other public utilities we have seen some measure of public ownership and operation following earlier attempts at regulation. Shall we see a similar venture in the milk industry? Some thoughtful students of the problem see no way of reducing materially the present spread between the retail price of milk and the price received by the farmer unless major reforms are made in the industry, or unless the state or municipalities undertake public operation. The necessary major reforms to increase efficiency are scarcely possible unless in each milkshed a practical monopoly is exercised either by farmers' coöperatives, by the distributing companies, or by both.

If there should be a real shortage of milk as prophesied in bulletins following the recent drought, competitive conditions of previous years again may prevail. So long as production continues greatly in excess of fluid consumption, public regulation of prices to farmers probably will be continued. If production costs increase and consumer resistance to higher prices tends to reduce consumption, there may be public demand for major reforms in milk distribution or municipal operation.